

IN THE CLAIMS:

On page 29, line 1, delete ~~Patent Claims~~ and insert:

C L A I M S

What is claimed is:

Please cancel claim 26, add a new claim 27 and amend claims 1-25 to read as follows:

1. (Currently Amended) A In a device for sorting different materials, comprising a conveyor belt and at least one sensor which is assigned to the conveyor belt and senses pieces of material in a location-dependent manner on the conveyor belt, and at least one actuator which sorts out pieces of material in accordance with signals of the at least one sensor in a location-dependent manner, the improvement comprising ~~characterized in that an~~ at least one electromagnetic actuator ~~is used, comprising~~ having at least one energizable coil ~~(10)~~ rotatably suspended about a shaft ~~(7)~~, said coil ~~(10)~~, starting from a basic position, performing a rotational movement about the shaft ~~(7)~~ in ~~the~~ a gap between a pair of first oppositely magnetized permanent magnets ~~(8)~~ to a second position in a gap between a pair of second oppositely magnetized permanent magnets

~~(9)~~, comprising a magnetic field which in the gap of the second permanent magnets ~~(9)~~ ~~extends~~ extending opposite to the in direction ~~of the~~ to a magnetic field in the gap of the first permanent magnets ~~(8)~~, the rotational movement of the coil ~~(10)~~ effecting an actuating operation for sorting out the a piece of material.

2. (Currently Amended) The sorting device according to claim 1, ~~characterized in that~~ wherein the at least one electromagnetic actuator is arranged at the a side of the conveyor belt ~~(30)~~.

3. (Currently Amended) The sorting device according to claim 1, wherein ~~or 2, characterized in that~~ the at least one electromagnetic actuator ~~(24)~~ is driven in a location-dependent manner so as to pivot an ejector ~~(15)~~ connected to the actuator ~~(24)~~ into the ~~transportation~~ transport path of the ~~correspondingly~~ a respective sensed piece of material for sorting out the piece of material.

4. (Currently Amended) The sorting device according to claim 1 3, wherein ~~characterized in that~~ the at least one electromagnetic actuator is arranged ~~behind~~ at the end of the conveyor belt ~~(30)~~ at the an outlet side, and that

wherein the ejector (15) is pivotable into the flight transport path of the ~~correspondingly~~ respective sensed piece of material.

5. (Currently Amended) The sorting device according to any ~~one of claims 1 to 4, characterized in that the~~ claim 1, wherein windings of the coil (10) extend in planes which are ~~substantially~~ positioned substantially perpendicular to the shaft (7).

6. (Currently Amended) The sorting device according to any ~~one of claims 1 to 5, characterized in that~~ claim 1, wherein the permanent magnets (6) are made from neodymium-iron boron.

7. (Currently Amended) The sorting device according to any ~~one of claims 1 to 6, characterized in that~~ claim 1, wherein the permanent magnets (6) are formed as plate-like ring segments.

8. (Currently Amended) The sorting device according to ~~claim 7, characterized in that~~ wherein the an inner radius

and the an outer radius of the ring segments have their origin at the shaft {7}.

9. (Currently Amended) The sorting device according to any ~~one of claims 5 or 7, characterized in that~~ claim 5, wherein the coil {10} comprises two legs {17} which are radially oriented relative to the shaft {7}.

10. (Currently Amended) The sorting device according to any ~~one of claims 1 to 9, characterized in that~~ claim 1, wherein the coil {10} is held on a carrier {11} which is suspended from the shaft {7}, the end of the carrier {19} opposite to the coil {10} forming an adjusting ejecting member {15}.

11. (Currently Amended) The sorting device according to any ~~one of claims 1 to 10, characterized in that~~ claim 1, wherein each of the respective permanent magnet pairs ~~magnets {6}~~ are held at the one side and at the other an opposite side of the gap, respectively, on a ~~respective~~ base plate {2}, the base plates of the magnet pairs {2} forming parts of an exterior housing structure {1}.

12. (Currently Amended) The sorting device according to claim 11, ~~characterized in that~~ wherein a bearing in which

the shaft (7) is held mounted is provided in each base plate (2).

13. (Currently Amended) The sorting device according to any ~~one of claims 1 to 12, characterized in that~~ claim 11, wherein the coil (10) is supplied with current by means of silicone-coated stranded wires (20).

14. (Currently Amended) The sorting device according to ~~claims 11 and 13, characterized in that~~ claim 12, wherein a respective stranded wire (20) is arranged at each side of the carrier (11) and connected to the housing structure (1).

15. (Currently Amended) The sorting device according to ~~claim 11, characterized in that~~ wherein the base plates (2) are spaced apart by a housing wall (4) enclosing the coil (10) and the permanent magnets (6).

16. (Currently Amended) The sorting device according to any ~~one of claims 1 to 15, characterized in that~~ claim 1, wherein at least one further pair of third oppositely magnetized permanent magnets (22) is provided of opposite pole to the pair of second permanent magnets (9), with a gap thereinbetween, and a further coil (40) is provided, said

further coil ~~{40}~~ being offset relative to the first coil ~~{10}~~ such that it is positioned closer to the pair of third permanent magnets ~~{22}~~ and is energized whenever a rotational movement takes place from the pair of second permanent magnets ~~{9}~~ to the pair of third permanent magnets ~~{22}~~.

17. (Currently Amended) The sorting device according to claim 16, ~~characterized in that~~ wherein the position of the coils ~~{10; 40}~~ between the respective pairs of permanent magnets ~~{8; 9; 22}~~ is used for an actuating operation.

18. (Currently Amended) The sorting device according to claim 1, ~~characterized in that~~ wherein the first and second pairs of permanent magnets ~~{8; 9}~~ ~~cover~~ extend over a sector of about 90°.

19. (Currently Amended) The sorting device according to claim 16, ~~characterized in that~~ wherein the three pairs of permanent magnets ~~{8; 9; 22}~~ ~~cover~~ extend over a sector of between 120° and 180°.

20. (Currently Amended) The sorting device according to ~~any one of claims 1 to 19,~~ claim 1,

wherein in the basic position the coil ~~(10)~~ is ~~acted upon~~
energized by ~~negative or positive~~ a voltage of a given
polarity and the polarity thereof is reversed for ~~transfer~~
movement from the basic position into the second position.

21. (Currently Amended) The sorting device according to
claim 20, ~~characterized in that~~ wherein the coil ~~(10)~~ is
energized for a return movement from the second position
into the first position.

22. (Currently Amended) The sorting device according to
claim 13, wherein the electromagnetic actuator is arranged
in a housing, and wherein ~~or 14, characterized in that~~ the
respective stranded wire ~~(20)~~ is ~~laid~~ arranged in a loop
having a length several times the direct connection path
between a connection point at the coil ~~(10)~~ and a connection
point at the housing side.

23. (Currently Amended) The sorting device according to ~~any~~
~~one of claims 1 to 22, characterized in that~~ claim 1,
wherein a plurality of electromagnetic actuators ~~(24)~~ are
arranged side by side, forming a modular unit.

24. (Currently Amended) The sorting device according to claim 23, ~~characterized in that~~ wherein the shafts ~~(7)~~ of the individual electromagnetic actuators ~~(24)~~ from which the coils ~~(10)~~ are suspended are positioned along a straight line.

25. (Currently Amended) The sorting device according to claim 4, wherein ~~in combination with claim 23 or claim 24,~~ ~~characterized in that~~ the at least one sensor field ~~(33)~~ senses pieces of material in a location-dependent manner on the conveyor belt ~~(30)~~ and, in accordance with signals of the sensor field ~~(33)~~, corresponding actuators ~~(24)~~ of a modular unit ~~(23)~~ arranged behind the end of the conveyor belt ~~(30)~~ at the outlet side are driven in a location-dependent manner to pivot an ejector ~~(15)~~ connected to the respective actuator ~~(24)~~ into the ~~flight~~ transport path of the ~~correspondingly~~ respective sensed piece of material.

26. (Canceled).

Please add the following new claim:

27. (New) A method of sorting different materials using a comprising a conveyor having a conveyor belt comprising at least one sensor which is assigned to the conveyor belt and senses pieces of material in a location-dependent manner on the conveyor belt, and at least one actuator which sorts out pieces of material in accordance with signals of the at least one sensor in a location-dependent manner, said method comprising the steps of:

(a) placing metal parts on the conveyor belt;

(b) sensing the presence and position of said metal parts;

(c) conveying the metal parts to at least one electromagnetic actuator having at least one energizable coil rotatably suspended about a shaft said coil starting from a basic position, performing a rotational movement about the shaft in a gap between a pair of first oppositely magnetized permanent magnets to a second position in a gap between a pair of second oppositely magnetized permanent magnets, a magnetic field in the gap of the second permanent magnets extending opposite in direction to a magnetic field in the gap of the first permanent magnets, the rotational

movement of the coil effecting an actuating operation for sorting out the metal parts; and

(d) energising the at least one electromagnetic actuator to remove selected ones of the metal parts.